

# *Project Baseline Summary Report*

Data Source: **EM CDB**

Operations/Field Office: **Oakland**

Site Summary Level: **Laboratory for Energy-Related Health Research**

Project **OK-014 / LEHR Waste Management**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0275**

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## **General Project Information**

### **Project Description Narratives**

#### **Purpose, Scope, and Technical Approach:**

Definition of Scope: LEHR's waste management project includes management, characterization, storage, packaging, and transportation, for either disposal, recycling, or off-site storage of mixed, low-level radioactive, hazardous, and sanitary material/waste generated as part of past research, D&D and environmental restoration activities. These activities will be performed in accordance with RCRA, NEPA, OSHA, California Code of Regulations, and other applicable laws and regulations. Technical Approach: Management consists of daily management, fiscal management and reporting for waste related activities, and staff training. Characterization encompasses sampling waste/material, performing laboratory analyses, validation of data, reporting of analyzed data, and waste designation for remaining waste. Storage encompasses inspection of storage and accumulation areas, RCRA facility closure planning/implementation, and container/storage facilities maintenance. Packaging, transport, and disposal includes developing packaging plans, obtaining waste site acceptance, transportation to an appropriate facility, and disposal/storage of waste. This project also includes a program for recycling and reuse of miscellaneous material/waste from past D&D operations and environmental characterization activities. Technology such as macroencapsulation for lead, waste stabilization, and compaction/super compaction will be utilized when appropriate. Project to be complete FY 2004.

#### **Project Status in FY 2006:**

Project complete

#### **Post-2006 Project Scope:**

Project completed prior to 2006

#### **Project End State**

LEHR waste management program will be completed by end of FY2004 at which time all waste will be disposed of appropriately, material will be recycled or reused at other facilities, and the RCRA storage facility will be closed.

The following activities have been or will be accomplished by that time:

Material Recycled for Reuse-

- U-238 source and a thorium nitrate source
- 439 cubic meters of metal debris
- Ra-226 sources/standards totaling 14 mCi
- 21 other radioactive sources and standards (i.e. Am-241 Standard, Th-228 Sources, etc.)

Waste-

Complete characterization and disposal/or recycle of all legacy waste including:

- 31 drums of mixed waste approximately 450 containers of chemicals stored in a Radioactive Materials Management Area
- approximately 50,000 lbs of lead

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## **Project Description Narratives**

Packaged, Treated and Disposed of:

- 250 gallons of biological sludge
- 50 cubic feet of low-level biological waste

Packaged and Shipped Off-site for Treatment and/or Disposal:

- 4,000 cubic feet of soil and debris from DOE Box excavation and 72 bottles of unknown waste
- 16 drums of mixed waste from D&D activities
- 615 cubic feet of low-level radioactive waste from above ground contaminated structures from 336 animal pens
- 670 cubic meters of low-level soil and debris from the southwest corner
- 270 cubic meters of hazard waste soil from the Southwest corner
- 1945 cubic meters of low-level soil and debris from the Imhoff and Ra-226 tank-treatment system area
- 1054 cubic meters of low-level soil and debris waste from the dog pen area
- 4 cubic meters of hazardous soil from several domestic tank systems

The RCRA facility (MWSF) will be closed and remove it from EPA's RCRA facilities list.

### **Cost Baseline Comments:**

Cost estimate was developed from bottom up estimate technique utilized in the Draft Project Baseline Document for LEHR, 11/2/1998, Rev. B. The assumptions used to develop this PBS are as follows:

- All sources and standards will be recycled or reused
- All contaminated equipment will be used at another facility
- Disposal related cost does not include contingency
- Disposal cost does not include fee
- Liquid/sludge waste will double in volume as part of treatment
- IDW waste will be inserted into other waste streams
- Radioactive/California hazardous waste will be disposed at Envirocare as low-level radioactive waste
- Applied a 8% fee to all cost except disposal
- Hazardous waste treatment is included in disposal cost
- Characterization for disposal will be minimal; the majority of the data for profile will be based on existing data.
- Off-site disposal facilities will be available for the disposal of low-level radioactive waste.
- The majority of the remaining miscellaneous materials/waste can be recycled, reused, or disposed as non-radioactive or non-hazardous waste.
- The laws dealing with hazardous and mixed waste will not change significantly.
- The cost for mixed waste characterization and off-site storage and hazardous waste disposal will not change significantly.
- Commercial laboratories will have the capability to analyze the various types of remaining materials/waste.
- No additional permits will be required.
- DOE requirements and documentation will not increase significantly.
- No significant changes to the scope of work contained in the closure plan of the RCRA facility
- NEPA documentation for transport off-site of mixed waste will be a categorical exclusion (CX) or equivalent

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## **Project Description Narratives**

- Off-site mixed storage/disposal facility will be available
- Escalation of 2.7% was applied for FY2000 and 2.1% addition for each year after
- Generation of waste is based on PBS OK010 draft FFA schedule
- Surface release limits for unrestricted uses will not change from those contained in 5400.5.
- Case by case exemption from the moratorium for hazardous waste will use background calculations and not risk based RESRAD calculations.
- All volumes were based on current stored volumes or projected volumes in the current removal action work plan.
- Disposal containers are recycled B-25 boxes for low-level waste.

### **Safety & Health Hazards:**

Waste management of LEHR waste includes the handling of low-level radioactive hazardous and mixed waste/material (low-level and hazardous waste mixed together). The biggest hazards from waste handling are to the workers. Heat Stress, personnel contamination from the waste, and heavy equipment operation pose the biggest health and safety hazard. The Project Health and Safety Plan required that an activity hazard analysis be used to identify and document potential hazards. Detailed Health and Safety Plans will be prepared and strictly followed and Readiness Reviews conducted prior to startup of major field activities. Also, Hazard Work Permits (HWPs) identifying potential hazards associated with field activities as well as control measures to eliminate/minimize hazards will be prepared and approved by the site H&S Officer before initiation of field activities. The radionuclides of concern are primarily Radium-226 and Strontium-90, however other radionuclides were used at LEHR and therefore all activities will evaluate the hazards involved and proper precautions will be implemented prior to starting work. The primary chemical hazard is chlordane, which was used as flea control on the animals.

### **Safety & Health Work Performance:**

All project staff will receive proper H&S training which may include the following training as appropriate for the tasks/activities to be performed and the associated hazards with the tasks/activities being performed: Radiological Worker, 40 hour OSHA, 8 hour OSHA refresher, First Aid, Respiratory Protection, Heat Stress, Emergency Response, Employee Emergency Plans and Fire Prevention Plans, Accident Prevention, Signs and Tags at LEHR, Contingency Plan and General Emergency Procedures, Project Health and Safety Plan, Labels of Injurious Substances, PPE at LEHR, Proposition 65 Issues, HWPs, Radiological Protection Procedures, ALARA Program Training, Hazard Communication (HMIS), Preparation of Hazardous Materials for Transport, Safety Training and Education, Emergency Medical Services and First Aid, Specific Excavation Requirements, Protection Systems at Excavations, Electrical Safety, and Quality Assurance Program training. Daily tailgate meetings will be held prior to start of work. H&S issues and/or concerns are fully addressed in these meetings to eliminate/minimize H&S incidents and ensure readiness prior to work, monitoring controls, and mechanisms for unforeseen hazards. Since personnel contamination is a potential hazard, proper Personal Protective Clothing/Equipment are worn and a radiological frisking program will be instituted and strictly followed before and after entering radiologically controlled areas. The heat stress program is implemented when activities are performed during warm conditions. Spotters are used whenever heavy equipment is being operated to eliminate/reduce the likelihood of injury.

### **PBS Comments:**

Compliance with and implementation of FFCAct and RCRA requirements are in activities included in the scope of this project. Funding below projected levels would result in only partial implementation of enforceable requirements, RCRA, and FFCAct activities. The probability of enforcement action is high since the regulators are involved closely (almost daily) with the site. The site is on the NPL and there is strong community

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## Project Description Narratives

involvement and concern.

### Baseline Validation Narrative:

In April 1999, DOE Oakland performed a cost validation on Environmental Restoration project for FY1999 and FY2000 at LEHR. In performing this validation DOE/OAK prepared a detailed bottoms-up type estimate based on the scope of work identified by LEHR. DOE/OAK used this independent estimate to compare with the estimate prepared by LEHR for the on Environmental Restoration project. Meetings are scheduled with the site to reconcile the cost differences. The review team based their cost estimates on costs developed from similar type projects at other government sites and private industry.

## General PBS Information

**Project Validated?** Yes **Date Validated:** 4/30/1999  
**Has Headquarters reviewed and approved project?** No  
**Date Project was Added:** 12/1/1997  
**Baseline Submission Date:** 7/13/1999  
**FEDPLAN Project?** Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	Y	Y	N	N	N	Y	Y	Y

## Project Identification Information

**DOE Project Manager:** Wen Kao  
**DOE Project Manager Phone Number:** 925-422-0674  
**DOE Project Manager Fax Number:** 925-422-0832  
**DOE Project Manager e-mail address:** wen.kao@oak.doe.gov  
**Is this a High Visibility Project (Y/N):**

## Planning Section

### Baseline Costs (in thousands of dollars)

1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
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PBS Baseline (current year dollars)	9,416	0	9,416	472	377	1,222	1,049	1,359	863	1,000	1,000	2,500	1,000	0	0	
PBS Baseline (constant 1999 dollars)	8,964	0	8,964	472	377	1,222	1,049	1,359	840	954	934	2,287	896	0	0	
PBS EM Baseline (current year dollars)	9,416	0	9,416	472	377	1,222	1,049	1,359	863	1,000	1,000	2,500	1,000	0	0	
PBS EM Baseline (constant 1999 dollars)	8,964	0	8,964	472	377	1,222	1,049	1,359	840	954	934	2,287	896	0	0	
	2007	2008	2009	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
PBS Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## Baseline Escalation Rates

<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
<b>2010</b>	<b>2011-2015</b>	<b>2016-2020</b>	<b>2021-2025</b>	<b>2026-2030</b>	<b>2031-2035</b>	<b>2036-2040</b>	<b>2041-2045</b>	<b>2046-2050</b>	<b>2051-2055</b>	<b>2056-2060</b>	<b>2061-2065</b>	<b>2066-2070</b>
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

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## Project Reconciliation

### Project Completion Date Changes:

Previously Projected End Date of Project: 9/1/2001  
Current Projected End Date of Project: 9/30/2004

### Explanation of Project Completion Date Difference (if applicable):

The waste management program manages waste generated from environmental restoration activities. There are many variables that effect the amount and type of environmental restoration waste generated, and therefore, it is difficult to predict an accurate scope and schedule. The scope growth and change in project end date are due to the unpredictability of environmental restoration waste. These unpredictabilities include additional volumes, different type of waste that have been generated, and different types of wastes anticipated to be generated (mixed or hazardous instead of low-level). The waste management program can not close out until all the waste/material on site has been properly dispositioned.

### Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	4,272	Actual 1997 Cost:	377	Actual 1998 Cost:	1,049
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	2,846	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			77
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	2,923				

### Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	1,808	Additional and different types of waste found and anticipated (mixed/hazardous instead of all llw)
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	4,731	
Additional Amount to Reconcile (+):	2,539	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	7,270	

### Milestones

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Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Complete disposal of remaining biowaste	OK-014-8		9/1/1999			8/3/1998					Y
Complete disposal of waste from domestic septic tank remediation	OK-014-11		12/30/2003								Y
Complete disposal of waste from the dog pen area remediation	OK-014-13		9/1/2004								Y
Complete disposal of waste from the radium & Imhoff waste treatment systems	OK-014-12		9/1/2003								Y
Complete disposal of waste from the southwest corner remediation	OK-014-9		12/30/1999								Y
Project Mission Complete	OK-014-15		9/30/2004								Y
Project Start			10/1/1992								

## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Complete disposal of remaining biowaste	OK-014-8										
Complete disposal of waste from domestic septic tank remediation	OK-014-11		Y				2	3	3		Complete the disposal of all the waste generated during the removal action of the domestic septic tanks.
Complete disposal of waste from the dog pen area remediation	OK-014-13		Y				3	3	3		Complete the disposal of waste generated from the western and eastern dog pen removal actions.
Complete disposal of waste from the radium & Imhoff waste treatment systems	OK-014-12		Y				2	3	3		Complete the disposal of waste generated from the phase I and phase II Radium-226 and Imhoff waste treatment systems removal actions.
Complete disposal of waste from the southwest corner remediation	OK-014-9		Y				1	2	1		Complete the disposal of waste generated from the removal actions in the south west corner trenches.

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## Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Project Mission Complete	OK-014-15	Y	Y		Y	Y	1	3	3		Close out all waste management activities at the site.
Project Start				Y			1	1	1		Started EM-30 management of waste at LEHR

## Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
<b>MLLW</b>														
Storage	M3							0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>MLLW</b>														
Comm. Disp.	M3	1.00	0.00	1.00							0.00		1.00	
<b>LLW</b>														
Storage	M3							374.00	374.00	374.00	374.00	374.00	374.00	0.00
<b>LLW</b>														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
<b>LLW</b>														
Comm. Disp.	M3	374.00	0.00	374.00	0.00		0.00	0.00						374.00
<b>LLW</b>														
Ship to DOE Disp.	M3	0.70	0.00	0.70	0.00		0.00	0.70	0.00					
<b>Haz.</b>														
DOE On-Site	MT	0.00	0.00	0.00	0.00		0.00							
<b>Rem. Waste</b>														
Disposed	M3	4,271.50	0.00	4,271.50				156.00	739.50	228.00	356.00	437.00	2,349.00	6.00

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
MLLW													
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MLLW													
Comm. Disp.	M3												
LLW													
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LLW													
On-Site Disp.	M3												
LLW													
Comm. Disp.	M3	374.00											
LLW													
Ship to DOE Disp.	M3												
Haz.													
DOE On-Site	MT												
Rem. Waste													
Disposed	M3	6.00											
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total			
MLLW													
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
MLLW													
Comm. Disp.	M3									1.00			
LLW													
Storage	M3	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

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Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total
LLW										
On-Site Disp.	M3									153.50
LLW										
Comm. Disp.	M3									872.00
LLW										
Ship to DOE Disp.	M3									0.51
Haz.										
DOE On-Site	MT									586.00
Rem. Waste										
Disposed	M3									3,376.00